

# **Update Regarding the Off-Road Regulation and the In-Use On-Road Diesel Vehicle Regulation**



April 22, 2010  
Sacramento, CA

**California Environmental Protection Agency**  

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**Air Resources Board**





# Outline

- Overview
- Emissions Inventory Update
- Off-road Regulation Update
- Truck and Bus Regulation Update
- Next Steps





# Overview

- Recession, inventory improvements have reduced emissions
- Room for some relief for both regulations
- Can still meet SIP commitments and protect public health
- Consider both rules simultaneously





# 10 Guiding Principles for Amendments to Both Regulations

1. Continue progress toward cleaner air
2. Maintain public health benefits
3. Meet SIP commitments
4. Incentivize greenhouse gas reductions
5. Improve cost effectiveness
6. Lower peak year costs
7. Consider cumulative impact of both regulations
8. Provide most relief to fleets hardest hit by recession
9. Ensure emission reductions as economy recovers
10. Support clean technologies



# South Coast and San Joaquin Valley SIPs

- Attainment deadlines:
  - 2014 for PM2.5
  - 2023 for ozone
- Ozone and PM2.5 SIPs to U.S. EPA in 2007-2008
- South Coast and San Joaquin Valley need NOx down by half from 2006 levels for PM2.5
  - Heavy-duty trucks and construction vehicles are 40-50% of all NOx
- Even greater NOx reductions needed to meet 2023 ozone deadline





# Emissions Inventory Update and Health Effects





# What's New

- AGC Off-road Analysis
- Harley/Millstein off-road inventory paper
- Recession
- Regional truck inventory update
- PM health effects



# AGC Off-Road Inventory Analysis

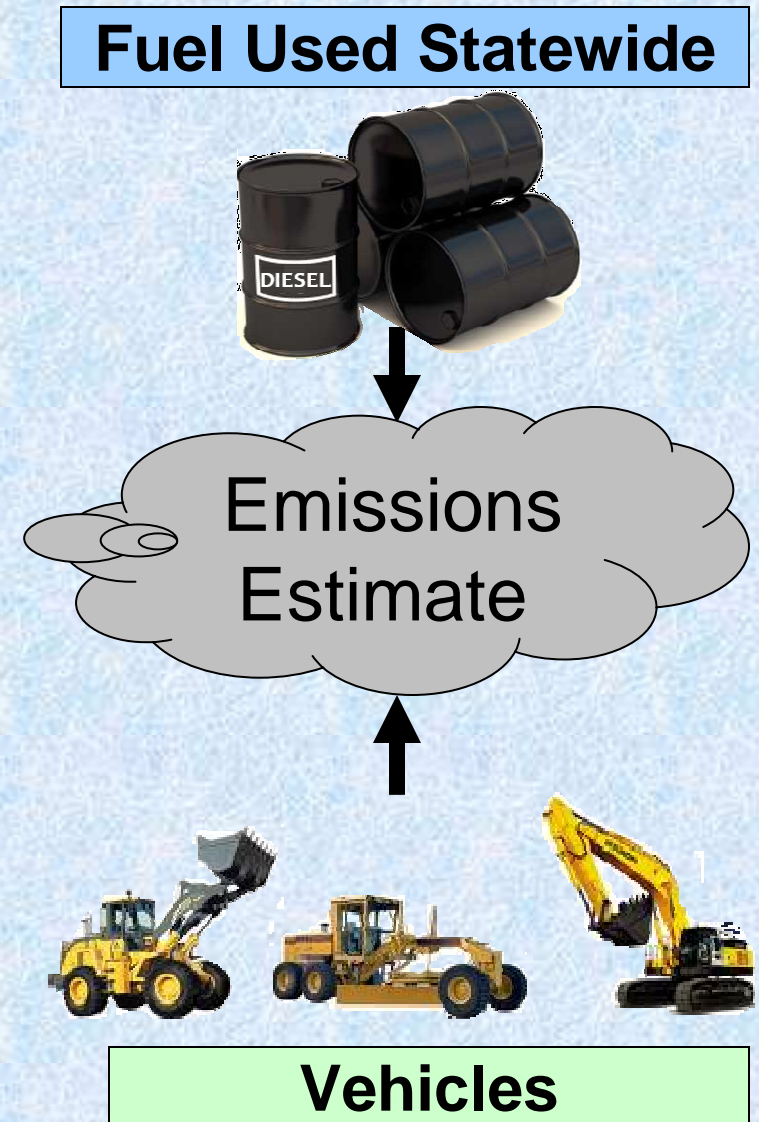
## Predicted Lower Emissions

- Used ARB's OFFROAD model and reporting data
  - Concluded emissions below rule targets for most years
- Previous ARB estimate: 190,000 vehicles
  - AGC: 33% lower
  - Current ARB: 8% lower
- Population slightly lower than expected, likely due to economy
- Emissions lower, but mainly for other reasons



# Estimating Off-road Emissions

- Emissions Modeling (bottom-up)
  - Detailed inputs at equipment category level - population, activity, emission factors, etc
  - Specificity necessary for regulatory development
- Fuel-Based Method (top-down)
  - Simplified approach based on estimated fuel use
  - Not detailed enough for regulatory development





# Harley/Millstein Paper

- Harley: ARB inventory a factor of 3 - 4 too high
  - Did not account for taxable fuel use in off-road vehicles
  - Did not account for all equipment categories covered by off-road regulation
- Preliminary staff assessment: factor of 1.4 – 2
- Staff continuing to refine estimate:
  - Reconciling bottom-up and top-down inventories
- Staff agrees previous inventory estimates too high



# Activity Reduced Due to Recession

- Overall construction activity down by ~50% from 2006
  - Construction indicators range from 30% - 80% down from peak to 2009









# Truck Inventory Refinements Continue: Construction Trucks, Regional Analysis

- Added construction trucking categories to reflect 50% reduction in construction truck emissions
- Regional inventory analysis
  - Rule inventory was statewide; now have regional estimates
  - Based on 2007-2009 field study
  - Regional rule inventory indicates more truck miles, additional emissions in South Coast





# Emissions Margin: South Coast 2014 Preliminary Estimate

Change	Impact on Emissions
Off-road Emission Method	
Recession on Off-road Sources	
Recession on Truck and Bus Sources	
Regional South Coast Truck Emissions	
<b>OVERALL Total</b> (NO <sub>x</sub> Equivalent tons per day)	<b>21 - 42 tpd Lower Than Expected</b>



# Updated PM Health Effects Report

- Symposium held on February 26, 2010
  - Presentation and discussion among scientists on impact of PM<sub>2.5</sub>
- ARB to report on PM<sub>2.5</sub> effect on mortality
  - New U.S. EPA calculation method
  - U.S. EPA method peer reviewed
  - U.C. peer review of California diesel PM exposure assessment



# Off-road Regulation





# Off-road Regulation Background

- Approved in 2007
- Sales disclosure and idling limits
  - Took effect in 2008
- Reporting
  - Required for all fleets in 2009
- Turnover and retrofit requirements
  - March 1, 2010 for large fleets and phase in through 2020
  - 2013 for medium fleets
  - 2015 for small fleets (retrofit only)
- Board approved AB 8 2X changes in July 2009



# Short-term Relief Granted: AB 8 2X

- Signed by Governor in February, 2009
- Directed ARB to amend regulation to address impacts of recession:
  - More retirement credits
  - New reduced activity credits
  - Delay a portion of 2011-2012 requirements to 2013
- Board approved in July 2009
- Retirement and reduced activity reporting due April 1, 2010





# Most Large Fleets Have Claimed AB 8 2X Credits

- So far ~55% percent of large fleets have claimed some credit:
  - On average, 41% reduced activity claimed
  - On average, 31% reduced hp claimed
- Applications still coming in
- On average, for fleet claiming credit, will cover:
  - 2 years of retrofit requirements, and
  - 4 years of turnover requirements



# AGC Petitioned ARB to Delay Regulation

- AGC petitioned ARB in January, 2010, for full 2-year delay of the regulation
  - AGC cited the recession's effect on industry and emissions
- ARB issued enforcement delay in February, 2010
  - Delay 2010 requirements
  - Time to consider potential need for further amendments
  - Recognized lack of U.S. EPA Authorization to enforce
- Executive Officer held special hearing on March 11



# Off-road EO Hearing Summary

- Economist Lynn Reaser, Point Loma Nazarene University
  - Construction sector down 30 - 70+ percent from peak
  - Slow recovery projected through 2015
- Harley/Millstein Study
- Individual fleets:
  - Recession - Loss in revenues, employment
  - AB 8 2X relief helpful but not adequate
- Changes requested:
  - 2 to 5 year delay; delay until Tier IVs available
  - Expand on AB8 2X credits
  - Slow down, spread out BACT requirements
  - Recognize actions already taken



# Objectives for Longer-Term Off-Road Regulation Changes

- More flexibility to use turnover, repowering for compliance
  - Greater reliance on turnover to Tier IV can provide greater NOx reductions in long term
- Credit fleets that have already taken actions
- Maintain existing structure
- Simplify regulation



# Longer-term Off-road Regulation Changes to Consider

- Some additional delay
- Reduce annual BACT requirements, especially before 2015
- Classifying more vehicles as low-use
- Other options suggested by stakeholders



# Truck and Bus Regulation





# Truck and Bus Regulation Background

- Approved in 2008
- Filter requirements to reduce PM emission
  - Phased in beginning January 1, 2011
  - Requires filters on all trucks by 2014
- Requirements to reduce NOx emissions
  - Phased in beginning January 1, 2013
  - Requires cleanest available engines by 2023
- First reporting deadline: March 31, 2010
  - Agricultural trucks and street sweepers
  - Reporting deadline for credits extended



# Truck and Bus Regulation Status

- In December 2009, Board directed staff to develop options for short term relief
- Held 3 public workshops in January 2010
- Staff has delayed planned amendments
  - Further economic and SIP analysis
  - Pursue longer-term relief
  - Consider together with off-road regulation



# Staff Will Still Propose Short-Term Relief

- Defer PM filter requirements for all fleets for up to 2 years
  - Preferred option from workshops
  - More relief to smaller fleets
  - Defer all PM filter requirements for fleets with 20 or fewer trucks
- Extend January 1, 2011 compliance date several months



# Longer-Term Truck and Bus Regulation Changes to Consider

- Additional flexibility in 2014
- One year delay would use up SIP margin
- Concepts to explore
  - Increase mileage thresholds
  - More gradual PM filter rate and/or vehicle upgrade rate
  - Allow credits to extend past 2014



# Next Steps





# Staff's Action Plan to Bring Amendments to Board

- Emissions inventory:
  - Reconcile fuel-based and ARB models
  - Work with U S. EPA
- Regulatory changes:
  - Follow 10 principles
  - Create detailed alternatives and evaluate cost/emissions impact
  - Gather input at workshops
  - Craft package that fit within final estimate of SIP margin and maintain health benefits



# Proposed Timeline for Amendments

- **May 2010:**
  - Workshops
  - Emission inventory approach, data sources, and methodologies
- **June 2010:**
  - Workshops
  - Draft proposed amendments
  - Preliminary inventories for Rule assessments
- **August 2010:**
  - Final inventories for Rule assessments released
  - Staff proposal released
- **September 2010: Board Hearing**
  - Revisions to both the truck and bus and off-road reg